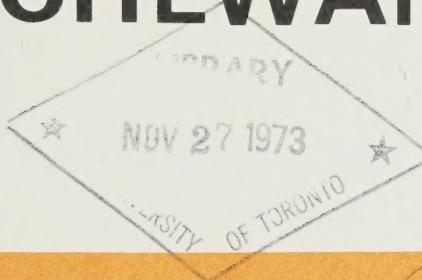


FARMING IN THE CYPRESS HILLS AREA OF SASKATCHEWAN

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FARMING IN THE CYPRESS HILLS AREA OF SASKATCHEWAN

M. M. SORBOE

Research Division
Economics Branch

Canada Department of Agriculture

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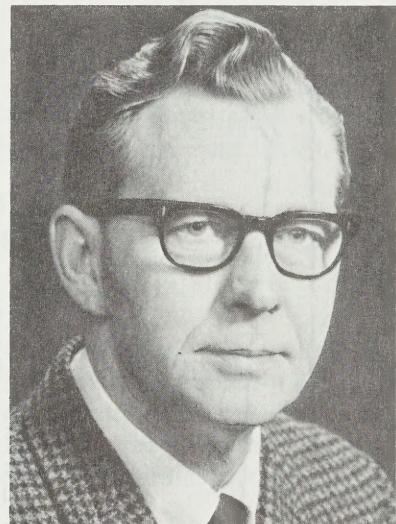
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FARMING IN THE CYPRESS HILLS AREA OF SASKATCHEWAN

a description and financial analysis

On good land, both cattle and grain are profitable enterprises.

On poor land, cattle raising can earn profits while grain growing loses money.



Max Sorboe*

The Cypress Hills area is a dry, rolling region in the southwestern corner of Saskatchewan and extends westward into Alberta. Most of the area is in the Brown Soil Zone and native cover consists chiefly of blue grass associated with common spear grass, blue joint (western wheat grass), June grass and Sandburg's blue grass.¹ Trees are absent except in certain moist, sheltered locations such as stream valleys.

Most economic activity in the area is generated by two farming enterprises, beef cattle and grain. The region is arid and varies greatly in soil composition and topography. Consequently, farms differ in size. At higher levels, in the Cypress Hills, it is too dry for grain production, hence cattle ranches predominate. Extending outward from the Hills the land becomes more level and productive; cattle numbers decrease and grain farms are interspersed with mixed cattle-grain farms.

*Mr. Sorboe is an economist in the Prairie Regional Office of the Economics Branch, Agriculture Canada and was formerly in the Vancouver office of the Branch.

This article is part of a larger study presently under way at the Regina office. The purpose of the study is basically, two-fold; (a) to collect information on pasture, feeds and feeding practices on grain-cattle farms to establish input-output co-efficients for interdisciplinary research and extension work; (b) to analyze the trend in grain-cattle farm structure and to determine the economic effects of shifts in the use of arable land.

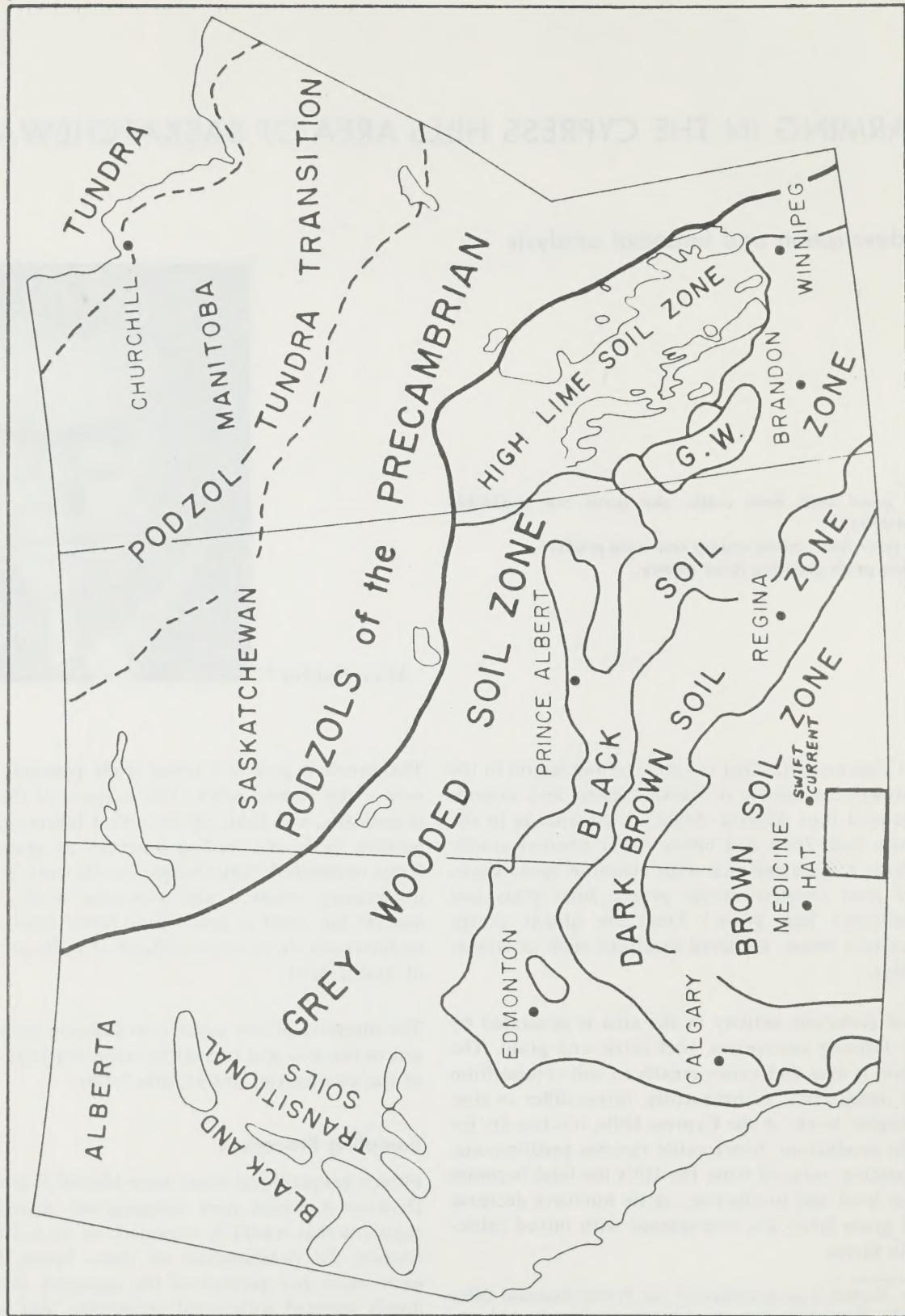
The objective of this paper is to describe farm practices in the area and to analyze some financial aspects of the commercial grain-cattle farms.

Sampling Procedure

Fifteen geographical strata were identified in Census Division 4, which were subsequently divided into segments that would be expected, on an average, to contain the headquarters of three farms. Within each strata five percent of the segments were randomly selected with equal probability and without replacement.²

GENERALIZED SOIL ZONES OF THE PRAIRIE PROVINCES

Showing Survey Area (Census Division 4)



Source: J.G. MacKenzie, Economics of Grain-Fallow Rotations and Fertilizer Use in the Prairie Provinces, Economics Branch, Canada Department of Agriculture, 68-9.

TABLE 1—NUMBER OF FARMS AND CHARACTERISTICS
OF FARM UNITS IN CENSUS DIVISION 4,
SASKATCHEWAN, 1966¹

	Census Division 4 Saskatchewan
Total Number of Farms.....	2,630
—percent of all farms—	
Farm Size (Improved Acres)	
Less than 400.....	28
400 to 1,119.....	51
1,120 or more.....	21
Farm Size (Number of Cattle)	
No Cattle.....	29
1 to 7.....	5
8 to 32.....	16
33 to 177.....	40
178 or more.....	10

¹ Source: 1966 Census of Canada.

All farmers whose farm headquarters were located in a sample segment were contacted. Detailed information was obtained from operators of farms with 33 to 177 head of cattle and from 400 to 1,119 improved acres. These limits were objectively derived from the 1966 Census of Canada data to include only commercial, family-operated grain-

cattle farms (Table 1). Approximately 30 percent of the farms qualified for inclusion in the study.¹

Method of Analysis

The 44 farms were classified into four groups as follows.

- a) less than 76 cattle units,³ and less than 883 improved acres (average cattle—average grain, AC-AG);
- b) less than 76 cattle units and more than 883 improved acres (average cattle—high grain, AC-HG);
- c) more than 76 cattle units and less than 883 improved acres (high cattle—average grain, HC-AG);
- d) more than 76 cattle units and more than 883 improved acres (high cattle—high grain, HC-HG).⁴

FARM PRACTICES

Land Use and Crop Yields

Grain land in the study year was farmed by a systematic one crop-summerfallow rotation. (Table 2). Stubble lands were infrequently seeded for cash grain cropping, but a number of farmers reported seeding stubble acreages for grain hay and pasture.

TABLE 2—AVERAGE LAND USE ON GROUPS OF GRAIN-CATTLE FARMS, CENSUS DIVISION 4, SASKATCHEWAN, 1970

	Farm Groups							
	AC — AG		AC — HG		HC — AG		HC — HG	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Number of Farms.....	16		9		11		8	
Improved Land ¹								
Wheat.....	151.2	29.9	481.3	36.4	143.4	18.7	475.0	26.8
Barley.....	32.3	6.4	70.1	5.3	22.0	2.9	85.6	4.8
Oats.....	4.1	0.8	36.4	2.7	13.0	1.7	93.1	5.3
Other Crop.....	12.7	2.5	12.7	1.0	34.5	4.5	53.1	3.0
Summerfallow.....	201.1	39.7	637.1	48.1	258.0	33.7	803.1	45.3
Grain Hay.....	37.3	7.4	34.3	2.6	81.8	10.7	28.8	1.6
Perennial Hay.....	11.5	2.3	25.8	1.9	62.9	8.2	52.3	3.0
Grain Pasture.....	11.9	2.3	26.6	2.0	13.2	1.7	—	—
Perennial Seeded Pasture.....	44.3	8.7	1.1	0.1	137.4	17.9	181.9	10.2
TOTAL IMPROVED LAND.....	506.4	100.0	1,325.4	100.0	766.2	100.0	1,772.9	100.0
Unimproved Land:								
Owned Grazing.....	321.1		254.8		592.0		686.2	
Rented Grazing.....	390.5		206.6		1,125.5		663.4	
TOTAL LAND OPERATED ²	1,218.0		1,786.8		2,483.7		3,122.5	

¹ Includes owned and rented improved land.

² Does not include community grazing lands.

The cash crops, in order of importance, were wheat, barley, oats, rye, flax and sunflower.

Cash grain crops and summerfallow occupied nearly 82 percent of the total improved land. The balance was used for hay and pasture. However, there was a large variation among groups of farms—dependent on and consistant with the relative importance of the cattle enterprise. The HC—AG farmers used 38.5 percent of their improved land for hay and pasture but the AC—HG farmers used only 6.6 percent of their improved land for forage.

Summer grazing was provided mainly by privately owned and leased land. The ratio of owned to leased rangeland for the HC—AG group was about 1:2 and for the other groups it tended toward a 1:1 ratio. In many instances, grazing was provided on community pastures. Several of the patrons of these pastures implied that the community pasture quotas set the limit on the size of their cattle herd.

Yields per acre were much higher on the large grain farms than on the average grain farms (Table 3). The average yield of perennial hay on non-irrigated land, on an average for all farms, was nearly the same as for oat hay—about one ton per acre. Only minor differences in crop management practices were recorded. Commercial fertilizers were used infrequently, generally on an experimental basis and with indeterminate results.

Haying Practices

Perennial hay and pasture establishment usually followed a grain-summerfallow rotation and the grass mixture was generally seeded in the spring with a cover crop of oats. Most mixtures included alfalfa, brome and crested wheat grass. Russian wild rye was receiving attention and two operators

had recently established pasture acreages with this grass in the seed mix. In the first year, only the cover crop was harvested. A light crop of hay was taken off some fields in the second year but generally it was not until the third year that a full hay crop was harvested.

Harvesting was done by swathing the grain hay and about one-half of the perennial hay. The rest of the hay was mowed and raked. The hay was then baled and hauled by truck or trailer to the winter feed yards where it was stacked, with rare exception, in the open.

Although most farmers in each group had unimproved land that could have been seeded to tame grass, there was some reluctance to do so for the following expressed reasons:

1. Establishment of tame grasses on marginal lands was risky and often a failure.
2. There would be a loss of natural grazing or native hay from the best of the remaining uncultivated land.
3. The additional forage yield from these lands would not be sufficient to defray the costs of establishing and maintaining the hay or pasture stands.
4. Grain hay and straw were cheaper than perennial hay to produce and, as sources of additional forage, their yields were more predictable and their acreages could be adjusted to meet requirements.⁵

Cattle Marketing and Management Practices

Farmers in the study area sold most of their cattle through local public auctions. Some were sold by commission agents to distant buyers and others were purchased directly from the operator by neigh-

TABLE 3—AVERAGE YIELDS OF HAY AND GRAIN ON GROUPS OF GRAIN-CATTLE FARMS, CENSUS DIVISION 4, SASKATCHEWAN, 1970

Farm Group	Number of Farms	Kind of Hay			Kind of Grain			
		Grain	Irrigated	Non-Irrigated	Durum	Wheat	Barley	Oats
			Time	Time				
			—tons per acre—			—bushels per acre—		
AC — AG.....	16	.99	1.44	.82	16.9	17.9	21.6	19.0
AC — HG.....	9	1.43	3.00	.97	30.0	23.9	43.1	54.3
HC — AG.....	11	.81	2.18	1.00	27.8	15.8	20.6	34.1
HC — HG.....	8	1.39	2.33	1.00	29.2	22.0	38.2	49.3
ALL FARMS.....	44	1.01	2.12	1.00	27.3	20.9	33.6	47.3

boring farmers. Three basic practices were followed in marketing cattle.

- (a) selling calves in October, November and December—cow-calf operations,
- (b) selling yearlings between February and July—cow-yearling operations,
- (c) marketing a mixture of feeder calves and feeder or semi-finished yearlings—a combination cow-calf, cow-yearling operation.

The average grain groups (AC—AG and HC—AG) were mainly cow-calf operations with cattle marketing averages of 71 and 74 percent calves, 16 and 15 percent steers and heifers, and 13 and 11 percent cull cows and bulls, respectively. Average distribution of cattle sales for the high grain groups (AC—HG and HC—HG) were 43 and 48 percent calves, 46 and 46 percent steers and heifers, and 11 and 6 percent culls, respectively. This strongly indicates that the cattle management system depends more on grain acreage than on cattle numbers.

No significance was attached to the differences in the average weights of calves sold by the various groups of farmers. Selling weights of calves were 458, 447, 423 and 443 pounds, respectively, in group order. However, the average market weights of yearling stock were 635, 732, 677 and 775 pounds per animal, reflecting heavier grain feeding on high grain acreage farms. Only five of the smaller grain producers "warmed-up" or semi-finished their yearling stock. In contrast, eight large grain farmers fed their yearlings intensively over a long period of time.

Hereford cattle predominated in the area and most of the operators used Hereford bulls. However, mixed herds of Hereford, Angus and Shorthorn were common and crossbreeding of these types was being done by several operators. A common practice was to breed heifers to an Angus bull to avoid calving

problems. Some Charolais-Hereford stock and Charolais bulls were also used and three operators had Galloway cows.

Calving starts about mid-March and extends through May, the peak period being April. Castration, dehorning and branding are done in May, June and July. Most of the cattle are vaccinated for blackleg, septicemia and malignant edema during the summer and spraying for warbles and other parasites is done as required. Calves are weaned in the fall, usually in October or shortly after the "roundup". The breeding herd is culled after roundup and during the winter. Replacement heifers are selected from the operator's own herd or purchased at local sales. Bulls are usually obtained at local auctions or directly from a breeder.

Cows and replacement long-yearling heifers are bred during the latter half of June and the first part of July. Breeding takes place in breeding pastures and continues on the range. Many of the smaller herds are serviced by government bulls on community pastures.

Feed Supply and Feeding Practices

Maintaining an adequate winter feed supply constitutes a major problem for cattle producers in the study area. Perennial hay yields and the length of the winter feeding period vary greatly, depending on the weather. Farmers try to carry over at least one-quarter ton of hay per animal unit.

The cattle ate 1.6 tons of forage per animal unit during the winter feeding period. The roughage was 44 percent grass hay, 29 percent grain hay and 27 percent straw on an average for all farms. More straw, chaff and grain were fed per animal unit by farmers with large grain acreages (Table 4).

TABLE 4—AMOUNT AND KIND OF ROUGHAGE AND GRAIN USED ON GROUPS OF GRAIN-CATTLE FARMS
CENSUS DIVISION 4, SASKATCHEWAN, 1970

Farm Group	Number of Farms	Average Cattle (A.U.'s)	Hay and Forage				Grain	
			Tame Hay	Native Hay	Grain Hay	Straw and Chaff	Home Produced	Purchased
—tons per animal unit—								
AC — AG.....	16	50.2	.33	.31	.52	.35	.24	.01
AC — HG.....	9	51.8	.44	.22	.55	.84	.63	—
HC — AG.....	11	108.9	.64	.05	.55	.32	.10	.02
HC — HG.....	8	110.0	.71	.14	.25	.46	.39	.02
All Farms.....	44	76.1	.55	.16	.46	.44	.27	.02

Labor Supply

About 73 percent of the total labor requirement was supplied by the operator. Unpaid family members contributed 24 percent and casual hired help, three percent. As farms increased in size the operator's time contribution decreased relative to that of unpaid family members.

FINANCIAL ANALYSIS

Liabilities

Average capital liabilities by farm groups were; AC—AG \$4,408, AC—HG \$10,649, HC—AG \$11,277 and HC—HG \$15,238. Calculated as a proportion of total investment, these debts averaged 10 percent of assets for all groups, based on land

values of \$50.00 per improved acre and \$10.00 per unimproved acre.

The most important source of loan funds was the Farm Credit Corporation. Second in importance were bank loans secured through the Family Farm Improvement Loan Administration. Private agencies including banks, credit unions and machinery companies supplied loans of shorter duration. Loan capital was used mainly for the purchase of additional land and secondly for machinery replacement.

Farm Income and Expenses

Larger farms generated higher incomes with less than proportionate increases in total farm costs.

TABLE 5—SUMMARY OF PHYSICAL DATA, CAPITAL INVESTMENT AND OPERATING STATEMENT OF GROUPS OF GRAIN-CATTLE FARMS, CENSUS DIVISION 4, SASKATCHEWAN, 1970

	Farm Group			
	AC — AG	AC — HG	HC — AG	HC — HG
Number of Farms.....	16	9	11	8
Number of Cattle Animal Units.....	50.2	51.8	108.9	110.0
Improved Acres to Cattle Enterprise.....	105	88	295	263
Improved Acres to Grain Enterprise.....	401	1,238	471	1,510
	—dollars per farm—			
Capital Investment				
Land.....	28,531	68,820	44,232	95,506
Buildings.....	11,185	18,262	15,872	20,976
Machinery.....	11,026	36,823	21,824	35,800
Livestock and supplies.....	13,937	16,986	29,759	31,962
Total Capital.....	64,679	140,891	111,687	184,244
Cattle Enterprise Income.....	5,784	6,828	12,259	14,603
Grain Enterprise Income.....	4,264	19,289	5,053	19,371
Total Farm Income.....	<u>10,048</u>	<u>26,117</u>	<u>17,312</u>	<u>33,974</u>
Land, Building and Fence Expense.....	983	1,479	1,589	2,021
Machinery Operating Costs.....	1,718	2,543	2,363	3,025
Custom Work.....	554	79	228	301
Hired Labor.....	68	236	326	104
Value of Feed Grain and Forage Used.....	770	1,968	1,097	2,432
Crop Expenses.....	164	523	333	681
Livestock Expenses.....	240	416	321	557
Other Cash Expenses.....	451	579	506	702
Total Cash Expenses.....	<u>4,948</u>	<u>7,823</u>	<u>6,765</u>	<u>9,823</u>
Machinery Depreciation.....	1,463	4,295	2,874	4,496
Building Depreciation.....	501	770	740	969
Total Farm Expense.....	<u>6,912</u>	<u>12,888</u>	<u>10,389</u>	<u>15,288</u>
Family Farm Income.....	3,136	13,229	6,923	18,686
Less Value of Unpaid Labor.....	891	1,911	1,230	3,056
Operator and Capital Income.....	2,245	11,318	5,693	15,630
Less Interest (6½%) on Investment.....	4,204	9,158	7,260	11,976
Operator's Labor Income.....	<u>-1,959</u>	<u>2,160</u>	<u>-1,567</u>	<u>3,654</u>
	—dollars per \$100 capital—			
Operator and Capital Income.....	3.47	8.03	5.10	8.48
Operator's Labor Income.....	<u>-3.03</u>	<u>1.53</u>	<u>-1.40</u>	<u>1.98</u>

Consequently, increasing returns to scale were reflected in the average net incomes of the operators for their labor and capital (Table 5). The sum of cash expenses, depreciation and the value of unpaid labor were a lower percentage of gross farm income for the high grain groups (57 and 54 percent, respectively) than for the corresponding average grain groups (78 and 67 percent, respectively). Average grain groups had negative incomes for labor and management but high grain groups were fully compensated for the use of capital and retained positive incomes for their efforts.

Cattle Enterprise Income and Expenses

There was a large difference in family farm income per animal unit among the four groups. It ranged from \$44.17 for the AC—AG group to \$75.29 for the HC—HG group (Table 6). The larger farms were more efficient, spreading fixed costs over more cattle.

TABLE 6—SUMMARY OF CATTLE ENTERPRISE INPUT-OUTPUT DATA ON GROUPS OF GRAIN-CATTLE FARMS, CENSUS DIVISION 4, SASKATCHEWAN, 1970

	Cattle Enterprise Group			
	AC — AG	AC — HG	HC — AG	HC — HG
Number of Farms.....	16	9	11	8
Number of Cattle Units Per Farm.....	50.2	51.8	108.9	110.0
Improved Acres to Cattle Enterprise.....	105	88	295	263
Unimproved Acres to Cattle Enterprise.....	712	461	1,717	1,350
	—dollars per animal unit—			
Capital Investment:				
Land.....	168	134	190	182
Buildings.....	154	162	110	110
Machinery.....	106	168	99	88
Livestock and Supplies.....	276	319	271	290
Total Capital.....	704	783	670	670
Cattle Enterprise Income.....	<u>115.13</u>	<u>131.81</u>	<u>112.57</u>	<u>132.74</u>
Expenses:				
Land, Building and Fence Expense.....	10.51	7.87	9.57	6.80
Machinery Operating Costs.....	15.09	11.33	12.47	8.61
Custom Work.....	3.20	1.43	1.36	1.85
Hired Labor.....	1.35	2.11	2.17	.71
Value of Feed Grain and Forage Used.....	9.52	14.57	5.97	14.31
Crop Expenses.....	1.45	2.22	1.74	1.80
Livestock Expenses.....	3.70	5.43	2.66	4.93
Other Cash Expenses.....	5.43	3.67	3.37	3.03
Total Cash Expenses.....	50.26	48.63	39.31	42.04
Machinery Depreciation.....	13.47	18.43	12.47	10.20
Building Depreciation.....	7.23	7.30	5.16	5.21
Total Cattle Enterprise Expenses.....	<u>70.96</u>	<u>74.36</u>	<u>56.94</u>	<u>57.45</u>
Family Farm Income.....	44.17	57.45	55.63	75.29
Less Value of Unpaid Labor.....	10.71	12.07	4.26	17.77
Operator and Capital Income.....	33.46	45.38	51.37	57.52
Less Interest (6½%) on Investment.....	45.74	50.92	43.56	43.50
Operator's Labor Income.....	-12.28	-5.54	7.81	14.02

The family farm income per animal unit was lower for the average grain group than for the corresponding high grain group. Two factors influencing these results were noted.

- (a) Average grain groups had lower yields of forage per acre than the high grain groups.
- (b) Operating statements for cattle enterprises show smaller gross receipts per cattle unit on the average grain groups (\$115.13 and \$112.57) than on the high grain groups (\$131.81 and \$132.74). Higher returns were received because the high grain group kept their calves longer and fed them to heavier weights.

- (a) Land, building and fence expenses;
- (b) Feed harvesting costs. This was particularly significant for the high grain groups.

However, even though the AC—HG group had a much higher gross income per animal unit than HC—AG, the operator and capital income was less —\$45.38 compared to \$51.37. In general, high operating expenses per unit were associated with small cattle enterprises. Increasing returns to size were reflected in the net incomes to the operators for labor and management. Similar results were obtained using \$100 of capital investment as a standard unit of comparison.

Grain Enterprise Income and Expenses

An operating statement analysis of the grain enterprises is summarized as follows (Table 7):

- (a) High grain enterprises had larger gross in-

comes per acre than the average grain enterprise groups.

- (b) Machinery operating costs per acre, including hired custom work and depreciation, declined progressively with increases in the size of grain enterprises. Also, land and building costs were lower per grain acre in high grain groups compared to those in average grain groups.
- (c) Consequently operator and capital incomes were much larger per grain acre on high grain enterprises than on their average grain counterparts. (Compare AC—HG with AC—AG and HC—HG with HC—AG).
- (d) Positive operator labor and management incomes, accrued to the large grain enterprises, but average size grain farmers suffered negative incomes for their labor and management.

TABLE 7—SUMMARY OF GRAIN ENTERPRISE INPUT-OUTPUT DATA ON GROUPS OF GRAIN-CATTLE FARMS, CENSUS DIVISION 4, SASKATCHEWAN, 1970

	Grain Enterprise Group			
	AC—AG	AC—HG	HC—AG	HC—HG
Number of Farms.....	16	9	11	8
Improved Acres to Grain Enterprise....	401	1,238	471	1,510
	—dollars per grain acre—			
Capital Investment:				
Land.....	50	50	50	50
Buildings.....	9	8	8	6
Machinery.....	14	23	34	17
Other.....	^a	^a	^a	^a
Total Capital	73	81	82	73
Grain Enterprise Income.....	<u>10.63</u>	<u>15.58</u>	<u>10.73</u>	<u>12.82</u>
Expenses:				
Land and Building Expense....	1.13	.87	1.16	.85
Machinery Operating Costs....	2.39	1.58	2.13	1.37
Custom Work.....	.98	—	.17	.06
Hired Labor.....	—	.10	.20	.02
Value of Feed Grain Used..	.73	.98	.95	.57
Crop Expenses..	.23	.33	.30	.32
Livestock Expenses..	.14	.11	.07	.01
Other Cash Expenses.....	.44	.31	.29	.24
Total Cash Expenses....	6.04	4.28	5.27	3.44
Machinery Depreciation.....	1.96	2.70	3.22	2.24
Building Depreciation.....	.35	.32	.40	.26
Total Enterprise Expenses.....	<u>8.35</u>	<u>7.30</u>	<u>8.89</u>	<u>5.94</u>
Family Farm Income.....	2.28	8.28	1.84	6.88
Less Value of Unpaid Labor....	.88	1.04	1.63	.73
Operator and Capital Income.....	1.40	7.24	.21	6.15
Less Interest (6½%) on Investment..	4.75	5.26	5.34	4.76
Operator's Labor Income..	—3.35	1.98	—5.13	1.39

^a Less than \$0.50.



OBSERVATIONS AND CONCLUSIONS

Farms in the average grain groups in Census Division 4 were too small to be economically self-sustaining. The analysis indicates that the cattle enterprise on such farms would have to increase substantially to make them economically viable. The grain enterprise on these farms, based on the yields obtained, should cease and the land used entirely for hay and pasture. Straw and grain could be purchased from grain farmers and land should be carefully assessed for increased grazing capacity. This could include improving both privately and publicly operated grazing land. Yield response to commercial fertilizer should be investigated thoroughly for irrigated forage production. Stopping grain production would cut machinery costs on cattle farms. Large tractors and combines would be unnecessary and existing smaller tractors, rakes and balers could be used to greater capacity on enlarged cattle-forage operations.

Grain emphasis farms in Census Division 4, on an average were large enough to be economically self-sustaining. The net return fully compensated the family labor and investment capital and provided and income for the operator's labor. Cattle could be combined successfully with grain enterprises on grain emphasis farms, up to rangeland capacity, for the following reasons:

- (a) Cereal grain was diverted to cattle finishing at a profit on large grain farms where financ-

ing was not a limiting factor. The increase in gross income exceeded the added costs of feed grain, cattle expense and family labor.

- (b) Machinery requirements on high-grain enterprises, to a large degree, were complementary to a cattle operation. Little additional machinery was required and consequently, equipment costs per unit of cattle production decreased as that enterprise expanded.
- (c) Labor resources were used more efficiently on grain emphasis farms as the cattle enterprise increased in size. An intensive yearling feeding program used labor during the winter that was surplus to the grain enterprise.

1. University of Saskatchewan, Soil Survey of Southern Saskatchewan, Soil Survey Report No. 12, p. 22.

2. Acknowledgement is extended to members of Statistics Canada for their work in identifying the strata and selecting the sample segments in the area of study.

3. In this study the following were considered equivalent to one cattle unit; a cow or a two year old heifer, .75 herd bulls, 1.5 yearling steers or yearling heifers, 4 calves.

4. Average cattle—average grain and the abbreviated terminology (AC-AG) infers that the number of cattle units and grain acres on these farms approximates the averages for all grain-cattle farms in the area. High cattle high grain farms (HC-HG) had more cattle units and grain acres than the average for the area.

5. For a detailed treatment of the relative costs of producing these forages see J. K. Wiens and M. R. Kilcher, Winter Feed Production on Grain-Cattle Farms in Saskatchewan, *Canadian Farm Economics*, Volume 5, Number 6, February, 1971.

APPENDIX 1 - AVERAGE YIELD COMPARISON, 10-YEAR AVERAGE, 1970 CROP YEAR AVERAGE^{1/} AND AVERAGE YIELDS OF GRAIN-CATTLE FARMS, CENSUS DIVISION 4, 1970

	Wheat			Oats			Barley		
	10-Year Average	1970 Average	Sample Average	10-Year Average	1970 Average	Sample Average	10-Year Average	1970 Average	Sample Average
	- bushels per acre -								
AC - AG	15.4	21.8	17.7	32.2	46.1	a/	25.3	34.4	21.6
AC - HG	17.1	23.5	25.4	35.5	49.4	54.3	27.9	38.3	43.1
HC - AG	13.9	20.5	17.3	29.6	43.3	34.1	23.2	33.7	20.6
HC - HG	15.1	22.0	23.9	32.2	46.9	49.3	25.7	35.6	38.3

1/ Source: Sixty-fifth Annual Report of Department of Agriculture of the Province of Saskatchewan 1970 and Supplementary Publications.

a/ Acreage too small for reliable yield data.

Note: Average yields for the principal cereal crops - wheat, oats and barley were substantially higher in 1970 compared with the 10-year average. Average grain groups had lower yields and high grain groups had comparable or higher yields than the 1970 crop year average for the respective municipalities.

APPENDIX 2 - DISTRIBUTION OF BUILDING INVESTMENT ON GRAIN-CATTLE FARMS, CENSUS DIVISION 4, SASKATCHEWAN, 1970

	Farm Group			
	AC - AG	AC - HG	HC - AG	HC - HG
- per cent -				
Dwellings	52	41	47	44
Cattle Shelters	11	12	7	9
Corrals, Chute and Fences	19	14	24	16
Wells and Dugouts	6	5	6	7
Granaries	8	23	9	13
Machinery Housing	3	5	6	9
Other L/S Buildings	1	a/	1	2
Total	100	100	100	100
- dollars -				
Total Investment in Buildings ^{1/}	11,185	18,262	15,872	20,976

1/ Present values: Determined on a basis of straight-line depreciation on current replacement costs.

a/ Less than .5 percent.

APPENDIX 3 - DISTRIBUTION OF MACHINERY INVESTMENT ON GRAIN-CATTLE FARMS,
CENSUS DIVISION 4, SASKATCHEWAN, 1970

	Farm Group			
	AC - AG	AC - HG	HC - AG	HC - HG
	- per cent -			
Cars	11	4	7	4
Trucks	24	20	17	14
Tractors	25	28	20	28
Balers	5	3	4	3
Swathers	3	5	9	8
Combines	4	18	12	15
Forage Harvesters	-	1	2	a/
General Machinery	28	21	29	28
Total	100	100	100	100
- dollars -				
Total Investment in Machinery ^{1/}	11,026	36,823	21,824	35,800

^{1/} Present values: Determined on a basis of straight line depreciation on current replacement cost (general machinery value based on farmers' estimates of present value).

^{a/} Less than .5 percent.

APPENDIX 4 - NUMBER OF ITEMS, SIZE AND AGE OF SPECIFIED ITEMS OF EQUIPMENT
ON GRAIN-CATTLE FARMS, CENSUS DIVISION 4, 1970

	Farm Groups			
	AC - AG	AC - HG	HC - AG	HC - HG
Cars: Number per farm	.62	.55	.81	.62
Average age - years	4.8	3.4	5.2	5.0
Trucks: Number per farm	1.56	2.78	2.00	2.62
Average size - tons	.85	1.22	1.10	1.50
Average age - years	11.4	6.4	8.5	4.8
Tractors: Number per farm	2.25	2.80	2.64	3.12
Average size - H.P.	37.6	47.7	43.0	50.12
Average age - years	15.6	9.9	13.0	10.6
Balers: Number per farm	.81	.88	.90	.88
Average age - years	10.4	5.2	7.2	6.1
Swathers: Number per farm	.93	1.22	1.00	1.25
Average size - feet	15.3	16.0	15.1	16.9
Average age - years	12.1	3.4	4.5	4.4
Combines: Number per farm	.87	1.33	1.09	1.12
Average size - feet	13.9	15.5	14.3	15.6
Average age - years	15.1	6.4	11.7	7.6

APPENDIX 5 - MACHINERY INVESTMENTS BY ENTERPRISE, GRAIN-CATTLE FARMS, CENSUS
DIVISION 4, SASKATCHEWAN, 1970

Type of Machinery	Farm Group							
	AC - AG		AC - HG		HC - AG		HC - HG	
	Cattle Unit	Grain Acre	Cattle Unit	Grain Acre	Cattle Unit	Grain Acre	Cattle Unit	Grain Acre
- dollars -								
Cars	14.74	1.20	10.15	.87	10.54	.92	5.87	.48
Trucks	31.29	2.55	47.53	4.09	24.54	2.15	21.05	1.70
Tractors	19.26	4.36	33.94	6.79	19.60	4.91	16.96	5.52
Balers	11.36	-	19.85	-	7.47	-	8.48	-
Combines	-	1.04	-	5.32	-	5.54	-	3.66
Swathers	-	.97	-	1.66	-	4.29	-	1.89
Forage Harvesters	-	-	4.90	-	3.81	-	1.49	-
Total Special	76.65	10.12	116.37	18.73	65.96	17.81	53.85	13.25
Plows	.14	.06	.29	.13	.34	.16	.10	.18
Discers	2.03	.90	2.07	.87	1.57	.70	.36	.64
Harrows	.26	.12	.17	.07	.61	.28	.04	.05
Drills	.24	.11	.48	.20	1.46	.66	.18	.32
Rakes	1.99	-	6.93	-	1.61	-	1.73	-
Power Mowers	3.15	-	4.96	-	1.24	-	1.20	-
Bale Elevators	.38	-	2.07	-	.32	-	.59	-
Weed Sprayers	.56	.24	.52	.22	.54	.24	.10	.18
Rod Weeders	.34	.15	1.12	.48	.90	.40	.15	.25
Cultivators	1.67	.74	2.22	.94	2.12	.95	.66	1.17
One Way Discs	.06	.03	-	-	.20	.09	.01	.02
Grain Grinders	2.55	-	6.91	-	2.39	-	5.36	-
Front End Loader	3.11	-	5.73	-	3.31	-	3.40	-
Seed Cleaning Equipment	-	.06	-	.07	-	.21	-	.05
Grain Augers	-	.62	-	.38	-	.66	-	.28
Poultry Equipment	-	.13	-	.05	-	.11	-	.04
Manure Spreaders	2.81	-	11.76	-	5.78	-	11.47	-
Trailers, Wagons	1.29	.11	0.48	.04	2.28	.20	.99	.08
Motors, Tools, Tanks	8.44	.69	6.16	.53	7.85	.69	7.51	.61
Irrigation Equipment	.30	.13	.02	-	.61	.27	.11	.19
Total General	29.32	4.09	51.89	3.98	33.13	5.62	33.96	4.06
Total Equipment	105.97	14.21	168.26	22.71	99.09	23.43	87.81	17.31

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